List of Figures
(Continued)

Incidental Items. Do not include separate pay items for pile encasement, reinforcing steel and concrete filling. These are included in the pay item for the piles.

5. Oversized Predrilled Pile Holes. For integral end bent structures, include a special provision to define the additional payment breakdown required for oversized predrilled holes and uncrushed gravel backfill. Note that the piles themselves should be paid for according to the INDOT *Standard Specifications*. Include this special provision in the plans where the blow count (N) exceeds 115 blows per meter within the 3-m interval below the bottom of the cap.

17-4.04 Steel Sheet Piling

Steel sheet piling required for railroad protection should be shown on the plans. Sheet piling with a higher section modulus than that specified may be required by the railroad company or by the contractor's bearing design. Sheet piling is cut to 0.3 m below the final ground elevation, and left in place after construction is complete. The sheeting is not required for permanent support, but disturbance caused by its removal may be damaging. Steel sheet piling to be left in place is measured by the square meter.

Steel sheet piling required for railroad protection is paid for at the contract unit price per square meter for sheet piling, steel, of the specified section modulus.

17-4.05 Backfill for a Structure

17-4.05(01) Backfill at Bridge Support

1. End Support.

   a. Beam/Girder Type Superstructure. Backfill behind an end bent should consist of coarse aggregate wrapped in a geotextile as shown in the INDOT *Standard Drawings*. An end bent drain pipe should also be included. A structure over water should have the outlet located on the downstream side wherever possible.

b. Reinforced Concrete Slab Bridge. Flowable backfill should be used to backfill behind an end bent as shown in the INDOT *Standard Drawings*. End bent drain pipes will not be required.

2. Interior Support.

a. Railroad or Roadway Grade Separation Structure. The area to a point 450 mm outside the neat lines of each footing should be backfilled with structure backfill as shown on the INDOT *Standard Drawings.* The neat line limits and estimated quantities should be shown on the Layout Sheet for each support location.

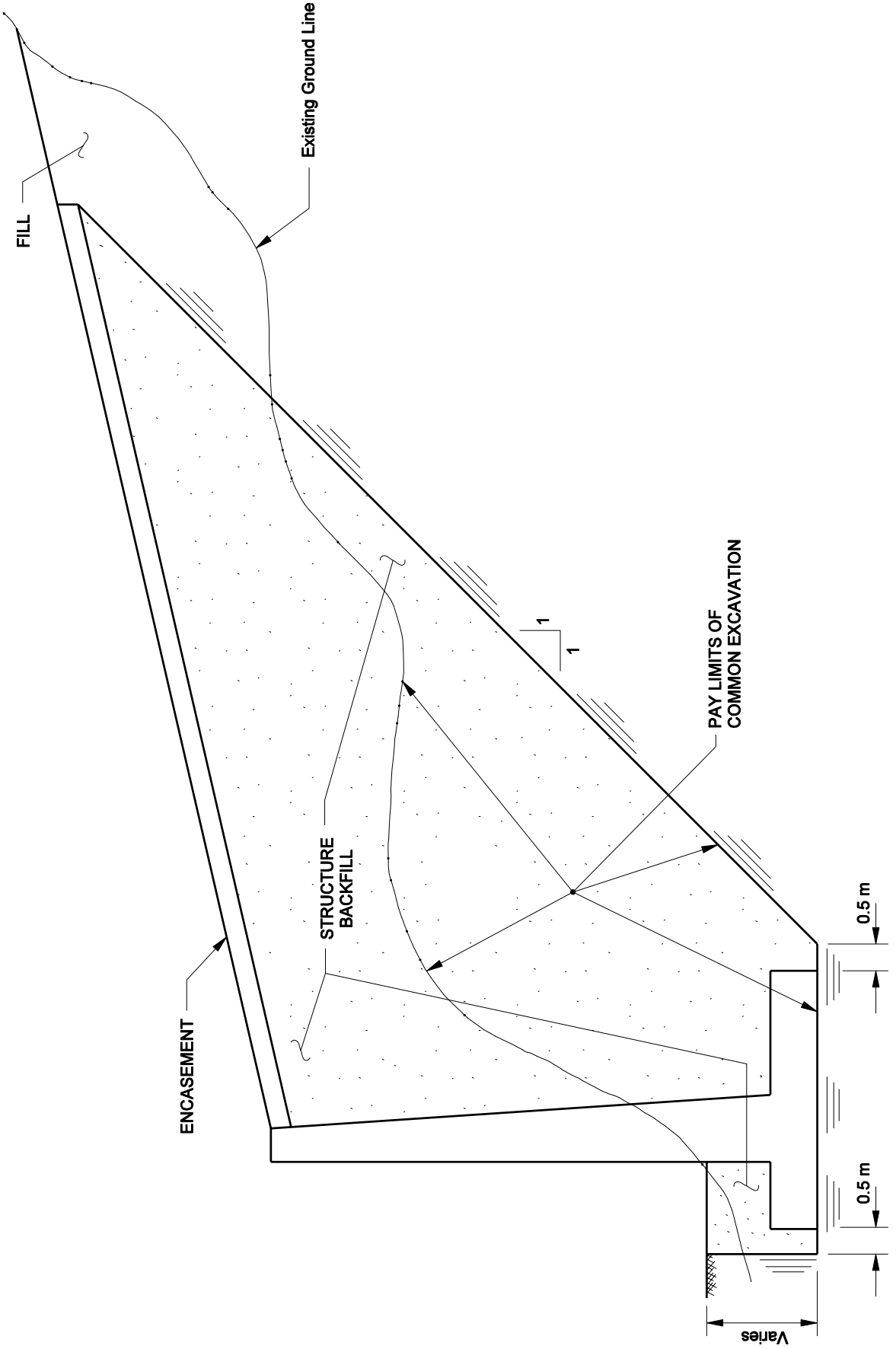
b. Bridge Over Waterway. The area to a point 450 mm outside the neat lines of each footing should be backfilled with common fill or borrow material.

17-4.05(02) Backfill for Retaining Wall

Chapter Sixty-eight provides the design criteria and warrants for the placement of retaining walls.

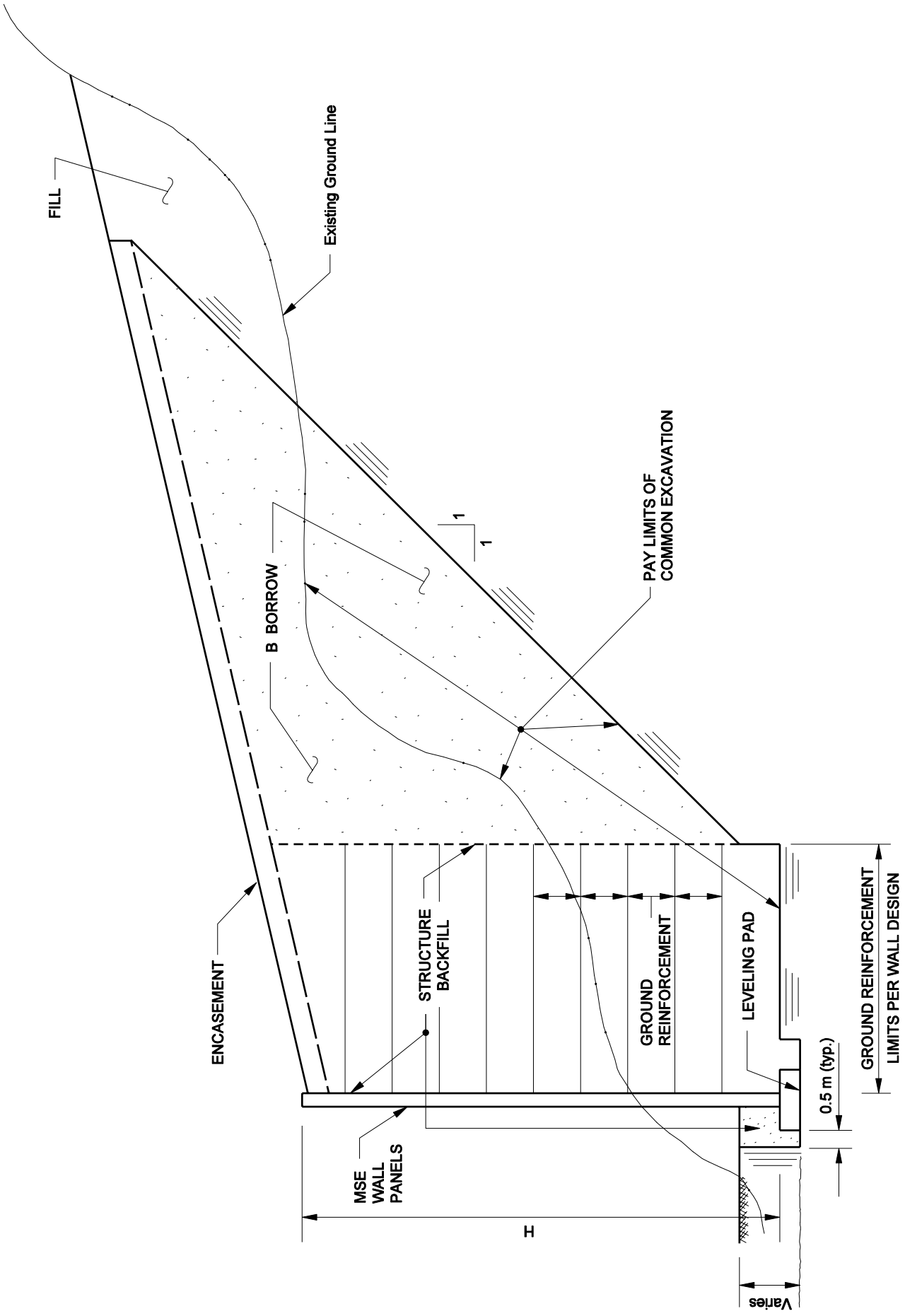
Figure 17-4B, Cast-in-Place Concrete Retaining Wall Earthwork Quantities Limits; Figure 17-4C, MSE Retaining Wall Earthwork Quantities Limits; and Figure 17-4D, MSE Retaining Wall Earthwork Quantities Limits Showing Foundation Treatment, each illustrate the typical pay limits for excavation and backfill material quantities for retaining walls. The contractor may select an alternate wall design. However, the earthwork quantities should be calculated based on the outermost neat-line construction limits for the wall type shown on the plans.

All excavation quantities required for placement of retaining walls should be incorporated into the project's earthwork quantities tabulation and balancing. The required pay items for a cast-in-place concrete wall are common excavation and structure backfill. The required pay items for an MSE wall are common excavation, structure backfill, and B borrow.



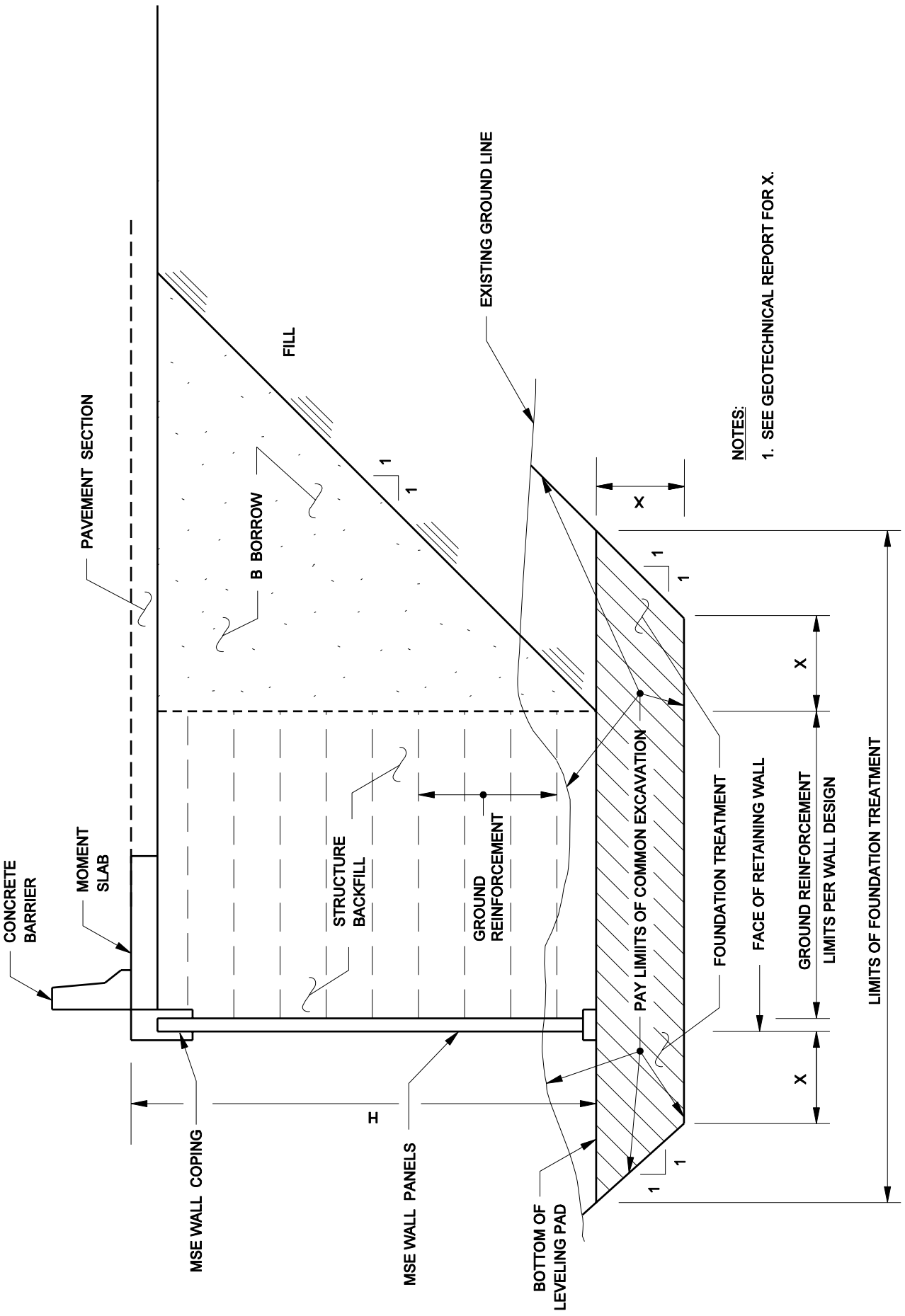
CAST-IN-PLACE CONCRETE RETAINING WALL EARTHWORK QUANTITIES LIMITS

Figure 17-4B

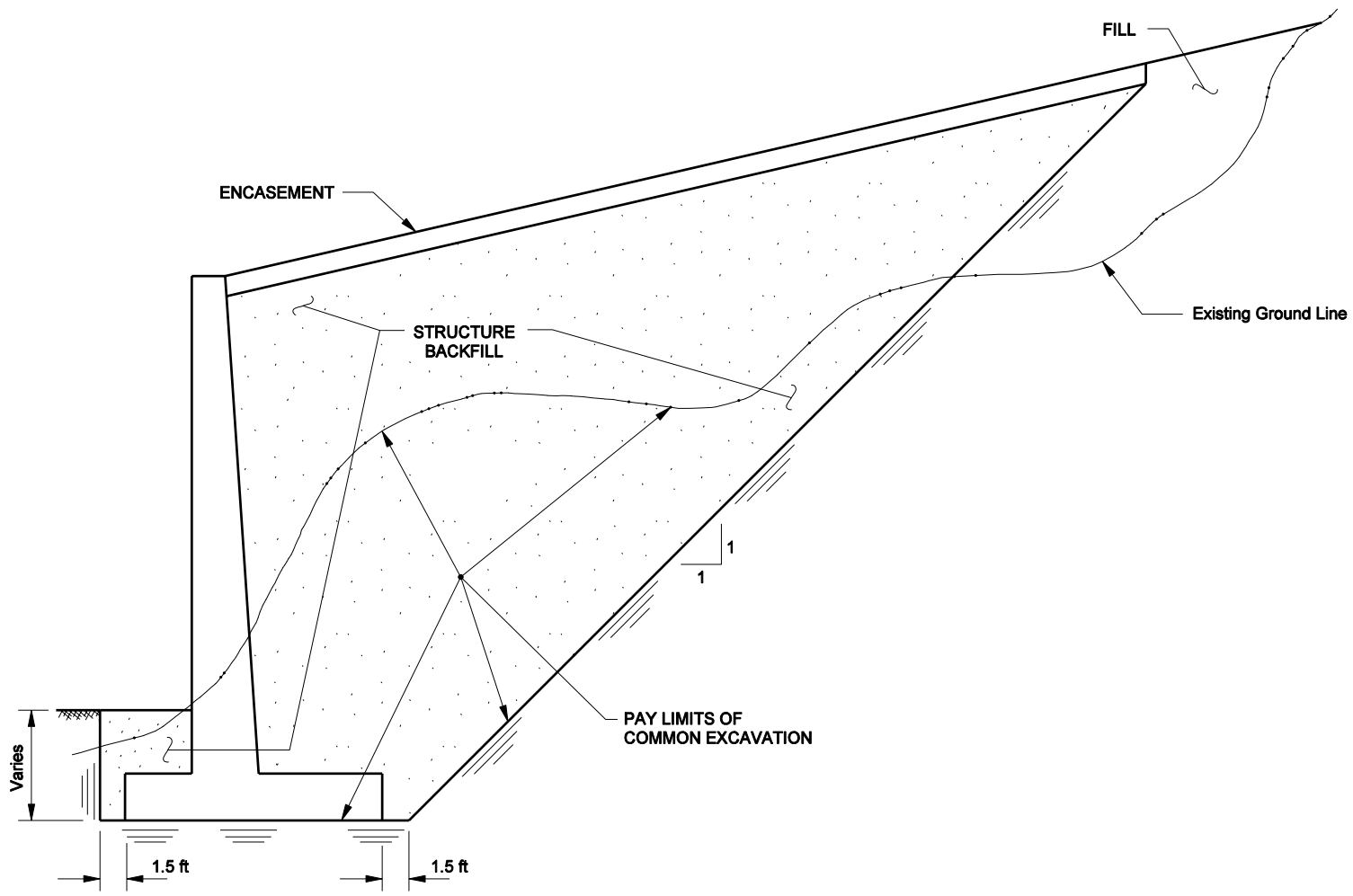


MSE RETAINING WALL EARTHWORK QUANTITIES LIMITS

Figure 17-4C

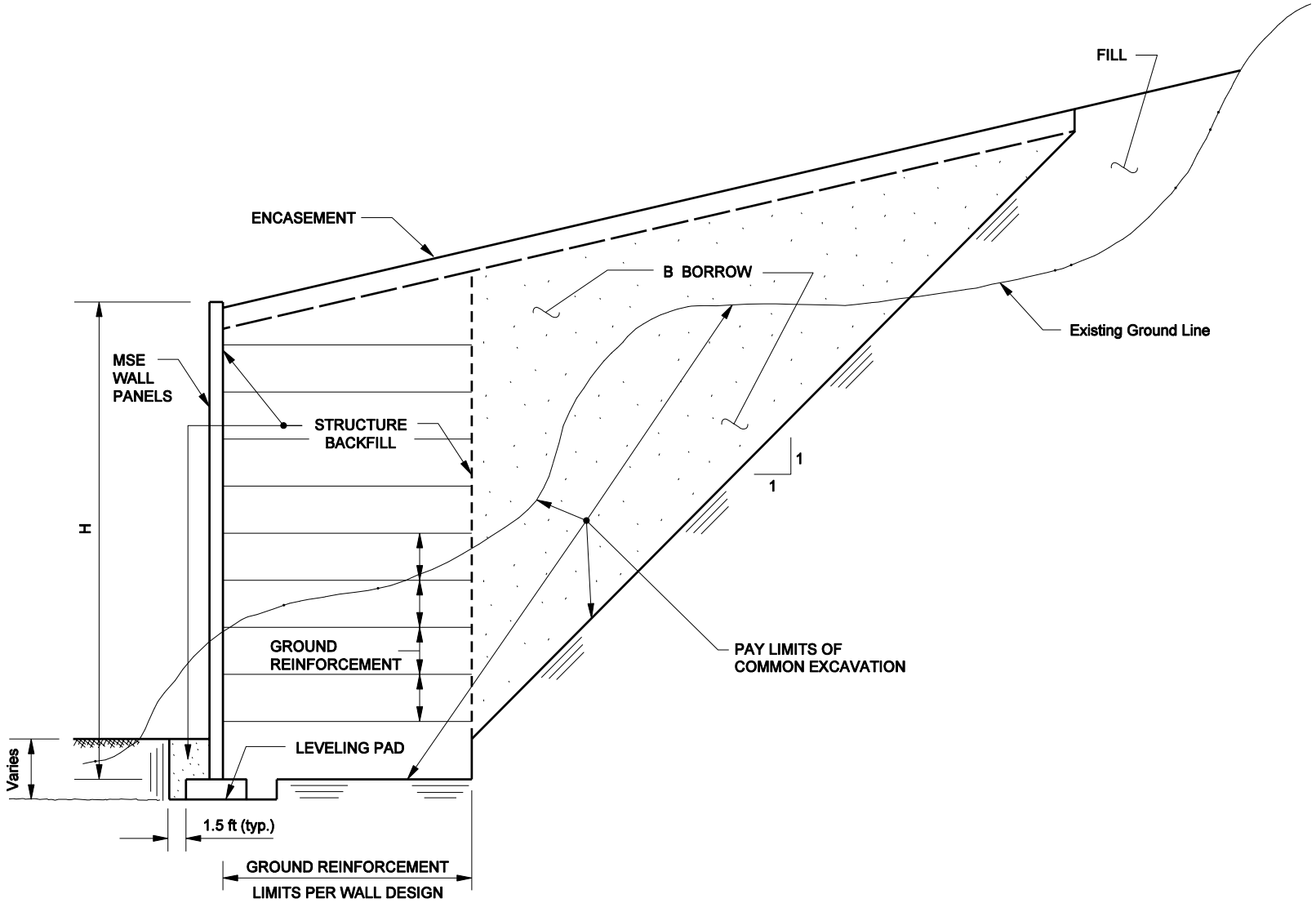


MSE RETAINING WALL EARTHWORK QUANTITIES LIMITS
(Showing Foundation Treatement)
Figure 17-4D



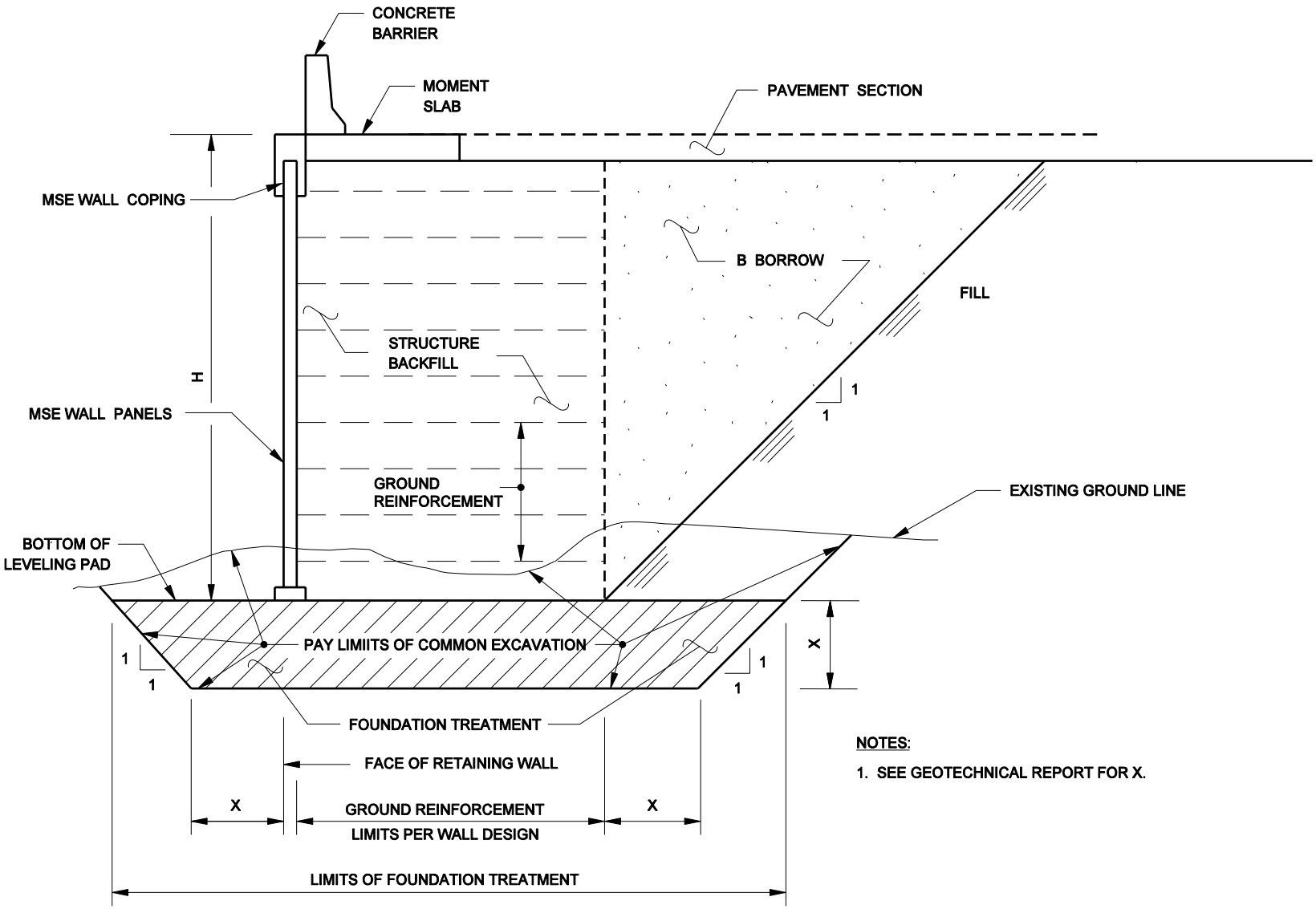
CAST-IN-PLACE CONCRETE RETAINING WALL EARTHWORK QUANTITIES LIMITS

Figure 05-25A



MSE RETAINING WALL EARTHWORK QUANTITIES LIMITS

Figure 05-25B



MSE RETAINING WALL EARTHWORK QUANTITIES LIMITS

(Showing Foundation Treatement)

Figure 05-25C